SUBJECT INDEX

Absence epilepsy, genetic model 37
Acetylcholine
  function in nucleus accumbens 721, 752
  in subretrofacial nucleus 217
  effect on synaptic transmission in hippocampus 596
Achaete-scute genes 294
Acoustic trauma, ion transport in outer hair cells 715
Action potential, Pacinian corpuscles 96, 97
Adaptive problem solving 230
Addiction
  morphine, role of histamine 694
  opiates, nucleus accumbens 753
Adenosine, kainic acid seizures 23
Adenosine-3′,5′-monophosphate
  learning in *Drosophila* 302
  synaptic transmission 564
Adenosine triphosphate, role in transmitter release 559
ADR mouse 314
Adrenaline
  in subretrofacial nucleus 211
  transduction in Pacinian corpuscles 115
β-Adrenoceptor antagonists, effect on subretrofacial nucleus 219
Aggressive behaviour
  nucleus accumbens 723
  role of histamine 693
Aging
  free radicals and brain injury 446
  histamine in brain 692
AIDS, neuronal disorders and macrophages 480, 482
Alcohols, effect on membrane fluidity and phase transitions 625
n-Alkanols
  effect on calcium currents 641
  effect on potassium currents 641
  effect on sodium currents in invertebrates 630, 662
  effect on sodium channels in vertebrates 636, 662, 669
n-Alkyl detergents, effect on sodium currents 641, 662, 667
Alphaxalone, effect on $GABA_A$-gated Cl^- channels 590
Alzheimer's disease
  molecular screening for genes involved in 329
  monoamine oxidase B in brain 73
  role of histamine 692
Amine precursor uptake and decarboxylation cells 70
cis-4-Aminocrotonic acid 583
3-Amino-3-hydroxy-5-methyl-4-isoxazolepropionate receptors
  effect of kainic acid seizures 12
  molecular biology 354
D(-)-2-Amino-7-phosphonoheptanoate 22
2-Amino-5-phosphonovalerate 22
9-Amino-1,2,3,4-tetrahydroacridine 692
Amygdala, nitric oxide system in 140
Amygdaloid complex, kainic acid induced damage 7
Angiotensin receptors, in subretrofacial nucleus 218
Anoxia, ion transport in cochlea 715
Antennapedia homeobox 309
Anticonvulsants
  effect on kainic acid seizures 20
  tiagabine 589
Antidepressants
  histamine interaction 693
  effect on NMDA receptor-mediated responses 423
Antihistamines
  induced convulsions 691
  effect on muricide 693
Antihypertensive drugs, effect on subretrofacial neurons 219
Antinociception, role of histamine 694
Anxiety, role of histamine 694
Apoptosis 481
Arachidonic acid
  intracellular messenger 564
  ROS formation 443
Arginosuccinate lyase, in brain 135
Arginosuccinate synthase, in brain 135
Artificial neural networks, problem solving 229–281
  basic network components and processes 234
  goal representation and utilization 251
  learned evaluation and sequential credit assignment 235
  simulated search 244
  variations 268
Astrocytes, monoamine oxidase B containing 71
Aversion, role of histamine 694

Baclofen
  inhibition of IPSPs 593
  effect on kainic acid seizures 20
  pre- and postsynaptic actions 581, 582
Band-pass filter, Pacinian corpuscles 109
Barbiturates, modulation of $GABA_A$ receptor/channel complex 590
Baroreceptor neurons, subretrofacial nucleus 207
Basal ganglion, nitric oxide system in 143
Basket cell 576
BCECF 511
Behaviour
  kainic acid induced changes 3
  nucleus accumbens 720
Bahavioural disorders, role of histamine 691
Benzodiazepines, $GABA_A$ receptor 495, 590
Benzyl alcohol, effect on sodium currents in invertebrate neurons 630
Bicarbonate, $GABA_A$ receptors 515, 521, 523, 525, 526
Biogenic amines, effect on kainic acid seizures 11, 22
Birds, magnetic orientation and magnetoreception 449–473
Blood–brain barrier, kainic acid-induced changes 9
Blood pressure
  role of histamine 690
  subretrofacial nucleus 198, 200, 207, 219

Blood vessels, cerebellum, cisplatin-induced changes 164, 167
Boolean network formalism 231, 234
Brain edema, therapy 23
Brainstem, nitric oxide system in 148
Bulbospinal barosensitive neurons, subretrofacial nucleus 207

Calbindin, in Purkinje cells, effect of cisplatin 180
Calcitonin gene-related peptide, effect of kainic acid seizures 17
Calcium
  modulation of $GABA_A$ receptors 507
  role in cisplatin induced Purkinje neuron degeneration 180
  role in GABA responses 580
  sodium channel gating 620
  transmitter release 541–552, 560, 563
  transport in cochlea hair cells 704, 709, 712, 715
  use dependence of guanidinium toxins in frog nerve 368, 370
Calcium-calmodulin-dependent kinase II 550, 555
Calcium channels
  exocytosis 541–552, 560
  zinc 397
Calcium channel blockers, effect on kainic acid seizures 23
Calcium current, effect of *n*-alkanols 641
Calcium–sodium exchange, in cochlea hair cells 711, 712
Carbonic anhydrase, in cochlea hair cells 714
Cardiopulmonary bypass, cardiotomy dementia and the macrophage 478
Cardiotomy dementia 478
Cardiovascular regulation, subretrofacial nucleus 200, 205, 207, 219, 220
Catalepsy, histamine induced 691
Catecholamines
  storage and release 556
  in subretrofacial nucleus 211
  transduction of Pacinian corpuscles 115
Catechol-*O*-methyl transferase, dopamine metabolism 384
Central respiratory rhythm generator 209
Cerebellum
  cisplatin and development of 161–196
  nitric oxide system in 145
c-*fos*, effect of kainic acid on expression of 9
CGP 35, 348, 600
Channel lifetime 503, 505
Chemokinesis 476
Chemotaxis 476
  HIV gp120 480
Chloramine-T, inactivation of Na^+ channels 366
Chloride, $GABA_A$ receptors 499, 509, 512, 519, 520, 523, 524, 581, 587, 590
Chloride–bicarbonate exchange
  in cochlea hair cells 713
  in neurons and glia 514
Chloride channels
  cochlea hair cells 709, 710
  effect of zinc 397, 434
Cholecystokinin, effect of kainic acid seizures 17
Cholinergic system
  effect of kainic acid seizures 11
  nitric oxide and cyclic GMP 139, 141, 145
Chromogranin B, effect of kainic acid seizures 18
Circadian rhythms, role of histamine 688
Citrulline, production and metabolism in neurons 135
Clonidine 22
  effect on subretrofacial nucleus 219
Clorgyline, effect on dopamine metabolism 383
Cochlea, ion transport mechanisms in outer hair cells 703–717
Conditioned avoidance, nucleus accumbens 723
Conditioned place preference, nucleus accumbens 723
Conditioned reinforcement, nucleus accumbens 723
Conditioning, models 241
Connectionistic modeling 230
Convulsions, effect of histamine 691
CPG 39551 22
Crayfish muscle fibre, $GABA_A$ receptors 515
Creutzfeld–Jacob disease 481
Cytokines
  macrophage-derived, effect on monoaminergic processes 476
  in neural tissues, evolution 482
Cytoskeleton, neuronal, effect of cisplatin 174, 179

Defensive behaviour, role of subretrofacial nucleus 220
Delayed matching to position, nucleus accumbens 724
Dementia
  monoamine oxidase B in brain 73
  role of histamine 692
(-)Deprenyl, effect on dopamine metabolism 383, 386
Depression, role of histamine 693
2-Desoxyglucose autoradiography, kainic acid seizures 9
Development
  cerebellum, effect of cisplatin 162, 163, 173
  $GABA_A$ receptors 522
  magnetic orientation 460
  nigral control of epilepsy 38
  role of zinc 396, 402, 416
Diazepam-binding inhibitor 592
cis-Dichlorodiammineplatinum II, effect on rat cerebellum 161–196
  damage to blood vessels 164, 167
  differentiating postmitotic cells 166
  interference with inhibitory neurotransmission 180
  proliferating cells 165
  therapeutic and side effects 162
Diencephalon, monoamine oxidase A in 56
Diethyldithiocarbamate, effect on synaptic transmission 426, 434
Differentiating cells, cerebellum, effect of cisplatin 166
Dihydrofolate reductase, effect of cisplatin 174
Disinhibition 601
Displacement behaviour, nucleus accumbens 720
DNA, cisplatin interaction in cerebellum 162, 163, 166, 173
cDNA, synthesis 341
cDNA libraries, neural cells 339–346
Docking–fusion complexes 549
Dopamine
  function in nucleus accumbens 720, 725, 748
  metabolism by monoamine oxidase in mammalian CNS 383

reward-dependent learning 752
Dopaminergic system, nigral control of epilepsy 41
Dorsal raphe nucleus, monoamine oxidase B in 61, 67
Dorsal root ganglia, sodium currents in 640
Drinking, role of histamine 689
Drosophila
position reading and sense organ emergence 293–297
sevenless receptor tyrosine kinase in 287–292
Dynorphin, effect of kainic acid seizures 15

Ellipticity model, transduction 117
Endolymphatic hydrops, ion transport 714
Endothelium-derived relaxing factor 130
Enhancer-trapping 303
Enkephalins, function in nucleus accumbens 721, 733, 752
Epilepsy
endogenous control, role of substantia nigra 33–52
GABAergic inhibitory synaptic transmission 601
kainic acid seizures in rats 1–32
role of histamine 692
Evaluation, training the Stimulus–Response network 236
Evaluation–Response associations 242
Evolution, immune-neuro-link and macrophages 482
Excitatory amino acids
effect on nitric oxide synthase system 135, 141, 146
ROS generation 444
vasomotor effects in subretrofacial nucleus 205
Excitatory amino acid neurotoxicity, effect of zinc 428
Excitatory amino acid receptors
effect of kainic acid seizures 12
nigral control of epilepsy 38
effects of zinc 415–433
Excitatory synaptic transmission, effect of zinc 426
Excitotoxicity
kainic acid 7
role of nitric oxide 140
Exocytosis, role of calcium 541–552, 560
External granular layer, cerebellum, effect of cisplatin 165, 168, 170

F-actin, in cochlea hair cells 709
Feed-forward inhibition, nucleus accumbens 746
Feeding
nucleus accumbens 723, 748
role of histamine 689
Filopodia, Pacinian corpuscles 94, 117
FK 33-824, effect on synaptic transmission in hippocampus 594
Free radicals
aging 446
cerebral ischaemia/reperfusion injury 444
lipid peroxidation 441
sources 442
Frog nerve, use dependence of guanidinium toxins 359–374

GABA
co-transmitters 579
inhibitory transmitter 490
effect of kainic acid seizures 13
nigral control of epilepsy 34, 37, 40, 45
nucleus accumbens, locomotor activity 720, 725
effect of opioids on release 593
receptors 491
in subretrofacial nucleus 217
targets 490
uptake in CNS 589
$GABA_A$ receptors 396, 489–537
activity-dependent modulation 597
Cl^- 499, 509, 512, 519, 520, 523, 524, 581, 587
desensitization 505, 597
glial cells 523
ionic modulation 506
ionic selectivity, conductance and gating 497
ionic shifts mediated by 523
membrane potential changes 509
modulatory substances 590
molecular biology 579
paroxysmal inhibitory potentials 599
permeability 499
single channel properties 580
structural and pharmacological properties 494
synaptic activation 515
effect of zinc 400–414, 434
$GABA_B$ receptors 396, 492, 581
activity-dependent modulation 597
effect of GABA uptake 589
mediated IPSPs 586
paroxysmal inhibitory potentials 599
effect of zinc 414
GABA/benzodiazepine receptors, effect of kainic acid seizures 14
$GABA_C$ receptors 583
GABAergic neurons
effect of kainic acid seizures on sprouting 19
morphology 576
physiology 583
GABA-mimetic drugs
effect on generalized seizures in rats 35
effect on kainic acid seizures 20
GAL4 304
Gamma-vinyl-GABA, nigral control of epilepsy 34, 37, 39
Gene expression, kainic acid induced seizures 9
Generator potentials, Pacinian corpuscles 97
Gene-targeting 322
neuropeptide functions in CNS 325
Genetics
Drosophila 287–291, 293–297, 299–308
leech 336
mouse 313–317, 319–331
Giant depolarizing potentials, $GABA_A$ receptors and zinc 405
Glial cells
$GABA_A$ receptor channels 523
monoamine oxidase B containing 71
transmitter receptors 491
Glucocorticoid receptor, nucleus accumbens 734
Glutamate
effect of kainic acid seizures 11
nucleus accumbens, locomotor activity 721
in subretrofacial nucleus 212, 217
Glutamate agonists, ROS generation 444
Glutamate antagonists, effect on kainic acid seizures 20
Glutamate decarboxylase
immunoreactivity in cisplatin-treated rats 174, 191

effect of kainic acid seizures 14
Glutamate diethyl ester 22
Glutamate receptors
mediated neuronal cell death 353
molecular biology 354
subtypes 354
Glutamate receptors, effects of zinc 415–433
Glutaminergic synapses, nucleus accumbens 747
γ-D-Glutamylaminomethylsulphonic acid 22
Glycine, binding in brain, effect of zinc 423
Goal representation and utilization, artificial neural networks 251
G protein, linked glutamate receptors, effect of zinc 425
Gramicidin channel 623
Growth factors, effect of kainic acid seizures 19
Guanidinium toxins, use dependence in frog nerve 359–374
Guanosine-3′,5′-monophosphate, nitric oxide interaction 137, 139, 149, 143, 144, 146, 149
Guanosine triphosphate-binding proteins, transmitter release 554
Guanylyl cyclase, soluble nitric oxide receptor 136
Guarded receptor hypothesis, ion channels 626

H^+, modulation of $GABA_A$ receptors 507
Heat shock proteins, effect of kainic acid on expression of 10
Hilar interneurons 579
Hippocampus
inhibitory transmission in 575–609
anatomy 576
modulatory substances 590
physiology 583
plasticity 597
receptors and effectors 579
kainic acid induced damage 7
nitric oxide system in 140
Histamine, monoamine oxidase B coexistence in hypothalamus 68, 72
Histamine receptors, in brain 695
Histaminergic neuron system 685–702
behavioural disorders and their clinical implication 691
localization and distribution in brain 686
motion sickness 695
physiological functions 688
HIV gp120, dementia and the macrophage 479
Hodgkin–Huxley sodium channel 612
Homobox peptide, neurotrophic activity 309–311
Homing, magnetic orientation 451, 453, 458
5-Hydroxyindoleacetic acid, effect of kainic acid seizures 11
5-Hydroxytryptamine
effect of kainic acid seizures 11
metabolism by monoamine oxidase 385
monoamine oxidase C coexistence in brain 67
in subretrofacial nucleus 218
effect on synaptic transmission in hippocampus 596
Hypothalamus
monoamine oxidase A in 56, 60
monoamine oxidase B in 68
nitric oxide system in 144
reward centres 239
Hypothermia, histamine induced 690

I factors 304
Immediate-early genes, effect of kainic acid on expression of 9
Immune-neuro-link, macrophages 475–488
cardiopulmonary bypass and cardiotomy dementia 478
evolution 482
HIV gp120 479
monoaminergic processes 476
Inhibitory amino acid receptor-ion channels, effect of zinc 396
Inhibitory postsynaptic potential
chloride homeostasis 587
$GABA_A$ receptors 405, 519
$GABA_B$ receptor mediated 586
monosynaptic 586
polysynaptic 584
potentiation by tiagabine 589
unitary 586
Inhibitory synaptic transmission, hippocampus 575–609
epilepsy 601
modulatory substances 590
plasticity 597
receptors and effectors 579
Interleukin-1, effect on monoaminergic processes 476, 482
Ion channels, $GABA_A$ receptor 497
Ionotrope transmitters 556
Ion-selective microelectrodes 510
Ion transport
mammalian cochlea 703–717
mechanisms 512
Ischaemia/reperfusion injury, free radicals 441–448

Kainic acid
induced seizures 1–32
behavioural and electrographic changes 3
neurochemical changes 11
neuronal plasticity and changes in growth factors 20
neuropathy 4
pharmacological treatments 21
effect of zinc on responses to 423
Ketamine 22
Kynurenic acid 22

Lanthanum, use dependence of guanidinium toxins in frog nerve 369
Lateral inhibition, nucleus accumbens 744
Learned evaluation 237
Learning
artificial neural networks 233, 235
reverse genetics 301
role of histamine 692
role of nucleus accumbens 723, 752
Leech
cDNA libraries from neural cells 340
neural repair 333–338
Leukotrienes, effect of kainic acid seizures 18
Limbic seizure, kainic acid induced 3
Limbic system, evaluation/reinforcement learning 239, 273
Linear Threshold Unit 234
Lipid peroxidation, ROS formation 442
Local anaesthetics, sodium channels 626, 648
Locomotion
effect of histamine 691
nucleus accumbens 720, 725, 729

Locus coeruleus, monoamine oxidase A activity 55
Long term depression, role of nitric oxide 148
Long term potentiation
  nucleus accumbens 747, 753
  role of nitric oxide 141
  underlying mechanisms 540
  effect of zinc 427
Luciferase model, ion channels 627

Macrophage, immune-neuro-link 475–488
  cardiopulmonary bypass and cardiotomy dementia 478
  derived cytokines, monoaminergic processes 476
  evolution 482
  HIV gp120 479
  implications for psychiatry 481
Magnetic field 450
Magnetic orientation, birds 449
  behavioural evidence 451
  conditioned responses to stimuli 460
  ontogeny 460
  physiological evidence 465
Magnetite, in birds 465
Magnetoreception, birds 449
  conditioned responses 460
  transduction mechanisms 465
Mannitol, prevention of brain edema 23
Mechanical transduction, theories 116
Medulla oblongata, monoamine oxidase A activity 55, 58
Membrane fluidity, ion channels 625
Membrane potential, $GABA_A$ receptors 509
Membranes, effect of surface-active compounds on neuronal sodium channels 620
Memory
  reverse genetics 301
  role of histamine 692
Meniere's disease, ion transport in outer hair cells 714
Mesencephalon, monoamine oxidase A in 56
Mesopontine cholinergic system, nitric oxide system in 145
Metabotrope transmitters 556
Met-enkephalin, effect of kainic acid seizures 15
N-Methyl-D-aspartate receptors
  dependent plasticity, nucleus accumbens 747
  effect of kainic acid seizures 12
  molecular biology 355
  nigral control of epilepsy 38
  nitric oxide interaction 139, 140, 141, 144, 146
  effect of zinc 416–423, 430, 434
N-Methyl-D-aspartate receptor antagonists, effect on kainic acid seizures 22
tele-Methylhistamine, monoamine oxidase B and oxidation of 72
1-Methyl-4-phenyl-1,2,3,6-tetrahydropyridine, oxidation by monoamine oxidase B 73
Microglia 475
Microtubules, cisplatin-induced damage 174
Midazolam, effect on inhibitory synaptic currents 591
Migration, magnetic orientation 449, 451, 457, 462
Milacemide, effect on dopamine metabolism 383
MK801 22
  binding in brain, effect of zinc 422, 434
Modulated receptor hypothesis, sodium channels 625
Monoamine oxidase, mammalian CNS
  cat brain 53–78
  cellular compartmentation 382
  containing fibres 70
  containing glial cells 71
  distribution 381
  enzyme histochemistry 54
  functional role 383
  in hypothalamus 56, 60, 68, 71
  immunohistochemistry 55
  isoenzyme classification 376
  in mes- and diencephalon 56
  in pons and medulla oblongata 55
  reaction mechanism 375
  in serotonergic system 67
  species distribution 377
  in spinal cord 70
  structure 376
  subcellular localization 377
  tissue distribution 379
Morphine
  nucleus accumbens, locomotor activity 721
  role of histamine in addiction and tolerance 694
Mossy cell 576
Mossy fibres, effect of kainic acid seizures on sprouting 19
Motion sickness, role of histaine 695
Motivation and reward, models 262
Mouse
  mutations, neuromuscular diseases 313–319
  reverse genetics, neurodegenerative disease 319–331
Muricide, role of histamine 693
Mutagenesis, *Drosophila* 299
Mutations, neuromuscular diseases, mouse 313
Myotonia, mouse model 314

NADPH-diaphorase neurons 130, 138
L-NAME, effect on cerebral ischaemia 444
Neocortex, nitric oxide system in 138
Nerve growth factor, effect of kainic acid seizures 19
Nerve growth factor receptor 348
Nerve terminal boutons, zinc in 395
Nerve terminals, zinc release 395
Neural modeling 230
Neurodegenerative diseases, reverse genetic screening for genes involved 328
Neuromodulators 557
Neuromuscular diseases, mouse models 313
Neuronal death, cerebral ischaemia 443
Neuronal specification, AS-C genes 295
Neurons
  kainic acid induced damage 4
  leech, cellular and molecular approaches to repair 333–338
Neuron specific enolase, effect of cisplatin 173
Neuropeptides
  GABA co-transmitters 579
  functions in CNS, gene-targeting 322
  effect of kainic acid seizures 14
  release 557, 558
Neuropeptide Y
  effect of kainic acid seizures 16
  in subretrofacial nucleus 211
Neurotensin, effect of kainic acid seizures 17
Neurotensin receptor gene, mutation 326
Neurotransmitters
  availability for release 552

differential release 556
endogenous control of epilepsy 37
effect of kainic acid seizures 11
local modulation of release by external factors 561
metabolism by monoamine oxidase 385
release, presynaptic plasticity 541–574
subretrofacial nucleus 217
Neurotrophin receptors 347–352
Neutrophils, free radicals and cerebral ischaemia 443
Next-state scanning 247
Nifedipine, effect on kainic acid seizures 23
Nigral control of epilepsy 33–52
Nipecotic acid 589
Nitric oxide
AIDS associated neuronal damage 480
intracellular messenger 565
neurotransmitter in CNS 129–160
basal ganglia 143
brainstem 148
cerebellum 145
cyclic GMP 137
guanylyl cyclase 136
hippocampus, septum and amygdala 140
hypothalamus 144
mesopontine cholinergic system 145
metabolism 135
neocortex 138
retina 144
spinal cord 148
role in cerebral ischaemia 444
Nitric oxide synthase
basal ganglia 143
brainstem 148
cerebellum 145
characterization 130
citrulline production and metabolism 135
hippocampus, septum and amygdala 140
hypothalamus 144
mesopontine cholinergic system 145
neocortex 138
nitric oxide metabolism 136
pharmacology 135
retina 144
spinal cord 148
Noise trauma, ion transport in outer hair cells 715
Noradrenaline
effect of kainic acid seizures 11
metabolism by monoamine oxidase 385
effect on synaptic potentials in hippocampus 595
NSF-attachment proteins 550
1-Nuciferine 22
Nucleus accumbens 719–761
alternative hypothesis of function 726
behavioural function 720
cortical, thalamic and amygdalar relationships to 742
functional heterogeneity of neurons 729
functionally distinct ensembles 733
learning 723
locomotor activity 720, 725, 729
output pathways 734
recruitment of neuronal ensembles in integration of multiple functions 740
short- and long-range lateral inhibition 744
striatal neurochemical systems, network functions 746
Nucleus tractus solitarius, immune-neuro-link 475
n-Octyl-β-D-glucopyranoside, effect on neuronal sodium currents 646, 658, 661
n-Octyl sulphate anions, effect on sodium currents 642, 643, 666
Opener muscle fibre, $GABA_A$ receptors 515
Operant conditioning, nucleus accumbens 724
Opiates
reward action, nucleus accumbens 753
in subretrofacial nucleus 218
Opioid peptides
effect on inhibitory transmission in hippocampus 592
effect of kainic acid seizures 14
Optical pumping, magnetoreception 466
Ornithine decarboxylase, effect of kainic acid 10
Outer hair cell, ion transport mechanisms 703–717
Oxygen radicals
aging 446
cerebral ischaemia/reperfusion injury 444
lipid peroxidation 441
sources 442
Oxypurinol, cerebroprotective activity 446

Pacinian corpuscles 79–128
function 96
deformation properties of the capsule 109
pharmacology of transductions 113
receptor and action potentials 97
quantitative models 118
structure 82
transducer mechanisms 119
Parkinson's disease
molecular screening for genes involved in 329
monoamine oxidase B in brain 73
role of histamine 691
Paroxysmal inhibitory potentials 599
Patch-clamping, $GABA_A$ receptor channels 497
P-elements, mutagenesis in *Drosophila* 300
Pentobarbital, effect on inhibitory synaptic currents 591
Periaqueductal grey, subretrofacial nucleus connections 220
pH regulation, cochlea hair cells 713
Phaclofen 598
Phencyclidine 22
Phenobarbital, effect on kainic acid seizures 20
α-Phenyl-*t*-butylnitrone 444
cerebroprotection and effect on ROS formation 445
2-Phenylethylamine, metabolism by monoamine oxidase 385
Phosphorylation, sodium channels 629
Photolithography, neuron culture 333
Photoreceptors
magnetic field perception 466
R7, *Drosophila*, model for inductive signalling 287
Pigeon
magnetic orientation 451, 453, 458
magnetite in 465
Pineal gland, response to magnetic field stimuli 467
Plasticity
activity-dependent modulation 597
paroxysmal inhibitory potentials 599
Polyamines, effect of kainic acid on synthesis 10
Polymerase chain reaction, *Drosophila* brain structure and function 301, 307
Pons, monoamine oxidase A activity 55

Position reading, sense organ emergence, *Drosophila* 294
Potassium, Pacinian corpuscles and transduction 113
Potassium channels
  cochlea hair cells 709, 710
  synaptic transmission 564
  effect of zinc 398, 433
Potassium-chloride cotransport mechanism 513, 514
Potassium currents, effect of *n*-alkanols 641
Presynaptic plasticity, regulation of Ca^{2+}-dependent transmitter release 539–574
Presynaptic receptors 561
Problem solving, artificial neural networks 229–281
Proliferating cells, cerebellum, effect of cisplatin 165
Proneural genes 293
Prostaglandin F2α, effect of kainic acid seizures 18
Protein kinase A, sodium channels 630
Protein kinase C
  ion channel phosphorylation 629
  presynaptic secretion 563
Purkinje cells, effect of cisplatin 172, 173, 175–193
Putrescine, in brain, effect of kainic acid 10

Quisqualate, effect of zinc on responses to 423

rab3A 554
Raf kinase, *Drosophila* 289
Ras l, sev signal in *Drosophila* 288
Reactive oxygen species
  aging 446
  cerebral ischaemia/reperfusion injury 444
  lipid peroxidation 441
  sources 442
Receptor potential, Pacinian corpuscles 96, 97
Regeneration, leech neurons, gene isolation 336
Reinforcement learning 235
Respiratory modulation, subretrofacial neurons 209
Retina, nitric oxide system in 144
Retrograde messengers 564, 580
Retzius cells
  culture 333
  cDNA libraries 340
Reverse genetics
  Drosophila brain structure and function 299–308
  mouse CNS 319–331
Reward centres, hypothalamus 239
Reward motivation, models 262
Reward-related learning, nucleus accumbens 724, 750, 752
Rolled, *Drosophila* 289

Saxitoxin, use dependence in frog nerve 359–374
Schizophrenia
  neuropathy 481
  role of histamine 694
Secretogranin II, effect of kainic acid seizures 18
Sedation, histamine 691
Seizures, kainic acid induced 1–32
Senescence accelerated mice, histamine in brain 692
Senile dementia, role of histamine 692
Sense organ precursors, *Drosophila* 293–297
Sensory Mother Cell 294
Septum, nitric oxide system in 140
Sevenless receptor tyrosine kinase, *Drosophila*, genetic dissection of signal transduction 287–292
Sexual behaviour
  nucleus accumbens 723
  role of histamine 695
Sib-selection, *Drosophila* 301, 302
Signal transduction 556
  sevenless receptor tyrosine kinase in *Drosophila* 287, 292
Simulated search 244
  model 247
Single-channel conductances, $GABA_A$ receptors 502
Skin, Pacinian corpuscles 80
Sleep, role of histamine 688
SNAP-25 550
SNARF 511
Sodium-bicarbonate cotransport 515
Sodium–calcium exchange, cochlea hair cells 711, 712
Sodium channels 611–683
  alcohols and h_∞ shift 669
  alcohols, *n*-alkyl cations and activation of I_{Na} 662
  effect of *n*-alkanols and benzyl alcohol 630
  effect of *n*-alkyl detergents 641
  diversity 619
  frog nerve, use dependence of guanidinium toxins 359–374
  hypotheses of phasic block and gating shifts 670
  mechanisms of purturbation by surface-active compounds
    membrane-based 620
    protein-based 625
  n-octyl sulphate and voltage dependence of current inactivation 666
  properties 612
  structure 617
  use-dependent block
    charged compounds 647
    neutral compounds 658
    similarities and differences 659
  effect of zinc 399
Sodium–H^+ exchange 515
  cochlea hair cells 713
Sodium–potassium–chloride cotransport 514
Sodium pump, cochlea hair cells 710, 712
Somatostatin, effect of kainic acid seizures 16
Spatial learning, nucleus accumbens 724
Spermidine, in brain, effect of kainic acid 10
Spermine, in brain, effect of kainic acid 10
Spinal cord
  monoamine oxidase B containing structures 70
  nitric oxide system in 148
Spinal muscular atrophy, mouse model 313
Spontaneously hypertensive rats, histamine in hypothalamus 690
Squid
  effect of alcohols on neuronal sodium currents 630
  effect of *n*-alkyl detergents on sodium currents 641, 659
Stimulus–Evaluation system 235
Stimulus–Response models 231, 233, 235
  goal representation and utilization 251
  simulated search 244
  training using evaluation 236

variations 268
Stimulus-secretion coupling 541, 556
impact of presynaptic receptor activation 562
Stress, role of histamine 690
Stretch-receptor neurons, $GABA_A$ receptors 517
Striatum
monoamine oxidase A in 56
nigral control of epilepsy 41
Subretrofacial vasomotor nucleus 197–227
action of antihypertensive drugs 219
chemical properties of neurons 210
definition 198
inputs to neurons 215
neurotransmitters and neuromodulators 217
physiological properties of neurons 200
role in cardiovascular regulation 200, 207, 220
Substantia nigra
endogenous control of epilepsy 33–52
monoamine oxidase A in 56
Sun compass 458
Superior colliculus, nigral control of epilepsy 42
Surface tension, ion channels 623
Surfactants
ion channels 624
effect on sodium currents 630–674
Synapsin I 550, 555, 561
Synaptic inhibition 575–609
Synaptic plasticity, transmitter release 540
Synaptic transmission, effect of zinc 426
Synaptic vesicles, zinc in 395
Synaptobrevin 550, 561
Synaptophysin 550
Synaptotagmin 550
Syntaxin 550, 561

Tachykinins, effect of kainic acid seizures 17
Tegmentum, nigral control of epilepsy 42
Tetrodotoxin
sodium currents 619, 641
transduction in Pacinian corpuscles 114
use dependence in frog nerve 359–374
Thalamus, nigral control of epilepsy 41
Thermoregulation, role of histamine 690
Thiamine deficiency, histamine in brain 693
Thyreotropin releasing hormone, effect of kainic acid seizures 17
Tiagabine, GABA uptake and IPSP 589
Tolerance, morphine, role of histamine 694
Touch, Pacinian corpuscles 79
Transduction, Pacinian corpuscles 96
deformational properties of the capsule 109
mechanisms 120
pharmacology 113
quantitative models 118
theories 116
Trimethylammonium cations, effect on sodium currents 641, 647, 659
Tryptamine, regulation by monoamine oxidase B in 5-HT cells 67
Tuberomammillary neurons, neuroactive substances in 687

Ubisemiquinone radical 442
Use dependence, guanidinium toxins in frog nerve 359–374

Vasoactive intestinal polypeptide, effect of kainic acid seizures 17
Vasomotor neurons, sunretrofacial nucleus 205
Ventral medulla, cardiovascular regulation 198
Vibratory stimuli, Pacinian corpuscles 79
Vicarious trial-and-error 247
Virus, neurological and neuropsychiatric deficits 480, 481
Viscerotopic organization of vasomotor subretrofacial nucleus cells 200

Wakefulness, role of histamine 688
Water balance, role of histamine 690
Wernicke–Korsakoff's syndrome, role of histamine 693
Wet-dog shakes, kainic acid induced 3
Wobbler mouse 313

Xanthine dehydrogenase, cerebral ischaemia 442
Xanthine oxidase, cerebral ischaemia 442, 446

Zinc 393–441
in CNS 394
excitatory amino acid receptors 415, 434
excitatory synaptic transmission 426
inhibitory amino acid receptor-ion channels 396, 434
modulation of $GABA_A$ receptors 507
neurotoxicity 428
physiological role 395

LIST OF PREVIOUS REVIEW ARTICLES

VOLUME 30

D. R. NÄSSEL	Serotonin and serotonin-immunoreactive neurons in the nervous system of insects
R. W. DYKES, P. LANDRY, T. P. HICKS, P. DIADORI and R. METHERATE	Specificity of connections in the ventroposterior nuclei of the thalamus
J. C. VENTER, U. DI PORZIO, D. A. ROBINSON, S. M. SHREEVE, J. LAI, A. R. KERLAVAGE, S. P. FRACEK JR, K.-U. LENTES and C. M. FRASER	Evolution of neurotransmitter receptor systems
B. GORDON, E. E. ALLEN and P. Q. TROMBLEY	The role of norepinephrine in plasticity of visual cortex
C. BELL	Dopamine release from sympathetic nerve terminals
M. ANNIKO, L.-E. THORNELL and R. WROBLEWSKI	Recent advances in inner ear cytochemistry—microanalytical and immunomorphological investigations
K. T. WANN and A. G. MACDONALD	Actions and interactions of high pressure and general anaesthetics
A. J. MCCOMAS, G. PRESTWICK and S. GARNER	The sick motoneurone hypothesis of muscular dystrophy
T. W. STONE and N. R. BURTON	NMDA receptors and ligands in the vertebrate CNS
E. HANSSON	Astroglia from defined brain regions as studied with primary cultures
H. SHINOZAKI	Pharmacology of the glutamate receptor
D. G. STUART, T. M. HAMM and S. VANDEN NOVEN	Partitioning of monosynaptic Ia EPSP connections with motoneurons according to neuromuscular topography: Generality and functional implications
C. D. MCCAIG	Nerve guidance: A role for bio-electric fields?
L. B. HOUGH	Cellular localization and possible functions for brain histamine: Recent progress
D. N. COOPER and C. HALL	Down's syndrome and the molecular biology of chromosome 21

VOLUME 31

K. H. REID, H. L. EDMONDS JR, A. SCHURR, M. T. TSENG and C. A. WEST	Pitfalls in the use of brain slices
N. A. SHAW	The auditory evoked potential in the rat—a review
W. LASKEY and C. POLOSA	Characteristics of the sympathetic preganglionic neuron and its synaptic input
M. DRAGUNOW	Purinergic mechanisms in epilepsy
Y. LAMOUR and J. EPELBAUM	Interactions between cholinergic and peptidergic systems in the cerebral cortex and hippocampus
T. NOGUCHI	Brain development in dwarf mice
D. G. JONES	Influence of ethanol on neuronal and synaptic maturation in the central nervous system—morphological investigations
J. P. FRAHER, G. F. KAAR, D. C. BRISTOL and J. P. ROSSITER	Development of vertical spinal motoneurone fibres: A correlative study of the growth and maturation of central and peripheral segments of large and small fibre classes
J. B. ULMER	The phosphorylation of myelin proteins
A. SIEGEL and C. B. POTT	Neural substrates of aggression and flight in the cat
H. SPITZER and S. HOCHSTEIN	Complex-cell receptive field models
Z. RAKONCZAY	Cholinesterase and its molecular forms in pathological states
J. M. PROVIS and P. L. PENFOLD	Cell death and the elimination of retinal axons during development
P. POLC	Electrophysiology of benzodiazepine receptor ligands: Multiple mechanisms and sites of action
C. R. GARDNER	Functional *in vivo* correlates of the benzodiazepine agonist-inverse agonist continuum
G. BERNROIDER	Cell-patterning during sexual neurogenesis
J. WICKENS	Electrically coupled but chemically isolated synapses: Dendritic spines and calcium in a rule for synaptic modification

VOLUME 32

H. PARNAS and L. A. SEGEL	Facilitation as a tool to study the entry of calcium and the mechanism of neurotransmitter release
T. L. TÖRÖK	Neurochemical transmission and the sodium-pump
A. SHOSAKU, Y. KAYAMA, I. SUMITOMO, M. SOGITANI and K. IWAMA	Analysis of recurrent inhibitory circuit in rat thalamus: Neurophysiology of the thalamic reticular nucleus
S. KOBAYASHI	Temperature-sensitive neurons in the hypothalamus: A new hypothesis that they act as thermostats, not as transducers
M. A. HOFMAN	On the evolution and geometry of the brain in mammals
H. MEIRI, Z. BAUM and Y. ROSENTHAL	Dynamic changes in sodium channels at demyelinated axons
R. WINKLBAUER	Development of the lateral line system in *Xenopus*
B. L. FINLAY and S. L. PALLAS	Control of cell number in the developing mammalian visual system
B. KOLB and I. Q. WHISHAW	Plasticity in the neocortex: Mechanisms underlying recovery from early brain damage
H. MATTHIES	In search of cellular mechanisms of memory
H. L. BORISON	Area postrema: Chemoreceptor circumventricular organ of the medulla oblongata
A. KIDMAN	Neurochemical and cognitive aspects of anxiety disorders
W. R. KLEMM	Drug effects on active immobility responses: What they tell us about neurotransmitter systems and motor functions
J.-P. TOUTANT	Insect acetylcholinesterase: Catalytic properties, tissue distribution and molecular forms
B. H. CHOI	The effects of methylmercury on the developing brain
R. J. HUXTABLE	Taurine in the central nervous system and the mammalian actions of taurine

VOLUME 33

M. YEADON and I. KITCHEN	Opioids and respiration
R. MILLER	Schizophrenia as a progressive disorder: Relations to EEG, CT, neuropathological and other evidence
F. L. STRAND, K. J. ROSE, J. A. KING, A. C. SEGARRA and L. A. ZUCCARELLI	ACTH modulation of nerve development and regeneration
R. D. FIELDS, J. M. LE BEAU, F. M. LONGO and M. H. ELLISMAN	Nerve regeneration through artificial tubular implants
A. NIIJIMA	Nervous regulation of metabolism
G. B. STEFANO	Role of opioid neuropeptides in immunoregulation
M. P. WITTER, H. J. GROENEWEGEN, F. H. LOPES DA SILVA and A. H. M. LOHMAN	Functional organization of the extrinsic and intrinsic circuitry of the parahippocampal region
R. H. EVANS	The pharmacology of segmental transmission in the spinal cord
A. PROCHAZKA	Sensorimotor gain control: A basic strategy of motor systems?
W. WALZ	Role of glial cells in the regulation of the brain ion microenvironment
A. ISHIDA-YAMAMOTO and M. TOHYAMA	Calcitonin gene-related peptide in the nervous tissue
T. S. LORIG	Human EEG and odor response
N. BEN-JONATHAN, L. A. ARBOGAST and J. F. HYDE	Neuroendocrine regulation of prolactin release

VOLUME 34

C. IDE, T. OSAWA and K. TOHYAMA	Nerve regeneration through allogeneic nerve grafts, with special reference to the role of the Schwann cell basal lamina
J. K. S. JANSEN and T. FLADBY	The perinatal reorganization of the innervation of skeletal muscle in mammals
J. L. WINSLOW	Analysis and numerical solution of the dendrite equation with synapses applied to cochlear neurons
Y. STERN	MPTP-induced Parkinsonism
M. SATOU	Synaptic organization, local neuronal circuitry, and functional segregation of the teleost olfactory bulb

R. MILLER, J. R. WICKENS and R. J. BENINGER — Dopamine D-1 and D-2 receptors in relation to reward and performance: a case for the D-1 receptor as a primary site of therapeutic action of neuroleptic drugs
J. M. DEL CORRAL, A. MIRALLES, M. C. NICOLAU, B. PLANAS and R. V. RIAL — Stereotaxic atlas for the lizard *Gallotia galloti*
K. KUBA and E. KUMAMOTO — Long-term potentiations in vertebrate synapses: A variety of cascades with common subprocesses
P. J. HARRISON and R. C. A. PEARSON — *In situ* hybridization histochemistry and the study of gene expression in the human brain
A. S. FENG, J. C. HALL and D. M. GOOLER — Neural basis of sound pattern recognition in anurans
W. DICKEY and J. I. MORROW — Drug-induced neurological disorders
D. COTARIU, J. L. ZAIDMAN and S. EVANS — Neurophysiological and biochemical changes evoked by valproic acid in the central nervous system
C. SUMMERS, L. M. MYERS, C. J. KALBERG and M. K. RAIZADA — Physiological and pharmacological comparisons of angiotensin II receptors in neuronal and astrocyte glial cultures
A. S. HORN — Dopamine uptake: A review of progress in the last decade
M. CHESLER — The regulation and modulation of pH in the nervous system
S. ITOH and A. TAKASHIMA — Neuropharmacological profile of V-9-M, a putative neuropeptide derived from procholecystokinin
G. I. HATTON — Emerging concepts of structure–function dynamics in adult brain: The hypothalamo–neurohypophysial system
S. NAKAMURA and T. SAKAGUCHI — Development and plasticity of the locus coeruleus: A review of recent physiological and pharmacological experimentation

VOLUME 35

M. J. TITMUS and D. S. FABER — Axotomy-induced alterations in the electrophysiological characteristics of neurons
A. M. THOMSON — Glycine is a coagonist at the NMDA receptor/channel complex
D. HERPIN — The effects of antihypertensive drugs on the cerebral blood flow and its regulation
R. FESCE — Stochastic approaches to the study of synaptic function
U. WINDHORST — Activation of Renshaw cells
K. G. HENDERSON and B. LINDVALL — Polymyositis and dermatomyositis 1990—diagnosis, treatment and prognosis
H. BENFENISTE and P. C. HUTTEMEIER — Microdialysis—theory and application
C. S. BOYAN and E. E. BALL — Neuronal organization and information processing in the wind-sensitive cercal receptor/giant interneurone system of the locust and other orthopteroid insects
M. ERECIŃSKA and I. A. SILVER — Metabolism and role of glutamate in mammalian brain
R. N. ADAMS — *In vivo* electrochemical measurements in the CNS
R. GRIFFITHS — Cysteine sulphinate (CSA) as an excitatory amino acid transmitter candidate in the mammalian central nervous system
J. M. OLCESE — The neurobiology of magnetic field detection in rodents
M. KUMADA, N. TERUI and T. KUWAKI — Arterial baroreceptor reflex: Its central and peripheral neural mechanisms
A. J. COPP, F. A. BROOK, J. P. ESTIBEIRO, A. S. W. SHUM and D. L. COCKROFT — The embryonic development of mammalian neural tube defects
W. WESEMANN and N. WEINER — Circadian rhythm of serotonin binding in rat brain
K. EZURE — Synaptic connections between medullary respiratory neurons and considerations on the genesis of respiratory rhythm
R. ANWYL — Neurophysiological actions of 5-hydroxytryptamine in the vertebrate nervous system

VOLUME 36

G. M. JONAKAIT, L. NI, P. D. WALKER and R. P. HART — Development of substance P (SP)-containing cells in the central nervous system: Consequences of neurotransmitter co-localization
A. J. SILVER and J. E. MORLEY — Role of CCK in regulation of food intake
L. SIVILOTTI and A. NISTRI — GABA receptor mechanisms in the central nervous system

W. VAN DER KLOOT	The regulation of quantal size
L. P. RENAUD and C. W. BOURQUE	Neurophysiology and neuropharmacology of hypothalamic magnocellular neurons secreting vasopressin and oxytocin
H. J. LITTLE	Mechanisms that may underlie the behavioural effects of ethanol
G. C. PAPADOPOULOS and J. G. PARNAVELAS	Monoamine systems in the cerebral cortex: Evidence for anatomical specificity
D. A. POWELL, S. L. BUCHANAN and L. L. HERNANDEZ	Classical (Pavlovian) conditioning models of age-related changes in associative learning and their neurobiological substrates
R. MILLER and R. J. BENINGER	On the interpretation of asymmetries of posture and locomotion produced with dopamine agonists in animals with unilateral depletion of striatal dopamine
S. E. FREEMAN and R. M. DAWSON	Tacrine: A pharmacological review
C. C. KING	Fractal and chaotic dynamics in nervous systems
R. HAWKES and C. GRAVEL	The modular cerebellum
R. W. GREENE and H. L. HAAS	The electrophysiology of adenosine in the mammalian central nervous system
J. W. UNGER, J. N. LIVINGSTON and A. M. MOSS	Insulin receptors in the central nervous system: Localization, signalling mechanisms and functional aspects
B. WALMSLEY	Central synaptic transmission: Studies at the connection between primary afferent fibres and dorsal spinocerebellar tract (DSCT) neurones in Clarke's column of the spinal cord
W. DICKEY	The neuroleptic malignant syndrome
R. J. HARVEY and R. M. A. NAPPER	Quantitative studies on the mammalian cerebellum
N. FALKE	Modulation of oxytocin and vasopressin release at the level of neurohypophysis
R. H. SCOTT, H. A. PEARSON and A. C. DOLPHIN	Aspects of vertebrate neuronal voltage-activated calcium currents and their regulation

VOLUME 37

E. W. LOTHMAN, E. H. BERTRAM III and J. L. STRINGER	Functional anatomy of hippocampal seizures
R. MONTEAU and G. HILAIRE	Spinal respiratory motoneurons
E. S. VIZI and E. LABOS	Non-synaptic interactions at presynaptic level
M. B. DUTIA	The muscles and joints of the neck: Their specialisation and role in head movement
D. R. NÄSSEL	Neurotransmitters and neuromodulators in the insect visual system
R. J. MILLER	The control of neuronal Ca^{2+} homeostasis
S. KATO, K. NEGISHI, T. TERANISHI and S. ISHITA	The use of the carp retina in neurobiology: Its uniqueness and application for neural network analyses of the inner retina
M. L. LANNOO, L. ROSS, L. MALER and R. HAWKES	Development of the cerebellum and its extracellular Purkinje cell projection in teleost fishes as determined by Zebrin II immuno-cytochemistry
G. E. DUNCAN and W. E. STUMPF	Brain activity patterns: Assessment by high resolution autoradiographic imaging of radiolabeled 2-deoxyglucose and glucose uptake
S. HAMPSON	Generalization and specialization in artificial neural networks
J.-P. ROYET	Stereology: A method for analyzing images
N. J. WOOLF	Cholinergic systems in mammalian brain and spinal cord
D. E. OORSCHOT, D. A. PETERSON and D. G. JONES	Neurite growth from, and neuronal survival within, cultured explants of the nervous system: A critical review of morphometric and stereological methods, and suggestions for the future

VOLUME 38

P. LEGENDRE and D. A. POULAIN	Intrinsic mechanisms involved in the electrophysiological properties of the vasopressin-releasing neurons of the hypothalamus
M. SCUKA and J. W. MOZRZYMAS	Postsynaptic potentiation and desensitization at the vertebrate end-plate receptors
J. MASSION	Movement, posture and equilibrium: Interaction and coordination

S. BERNATH	Calcium-independent release of amino acid neurotransmitters: Fact or artifact?
N. OKADO, H. SAKO, S. HOMMA and K. ISHIKAWA	Development of serotoninergic system in the brain and spinal cord of the chick
Y. DUMONT, J.-C. MARTEL, A. FOURNIER, S. ST-PIERRE and R. QUIRION	Neuropeptide Y and neuropeptide Y receptor subtypes in brain and peripheral tissues
B. B. STANFIELD	The development of the corticospinal projection
M. INOUE and M. YOSHII	Modulation of ion channels by somatostatin and acetylcholine
M. HAYASHI	Ontogeny of some neuropeptides in the primate brain
J. P. FRAHER	The CNS–PNS transitional zone of the rat. Morphometric studies at cranial and spinal levels
T. TANAKA, S. TANAKA, T. FUJITA, K. TAKANO, H. FUKUDA, K. SAKO and Y. YONEMASU	Experimental complex partial seizures induced by a microinjection of kainic acid into limbic structures
E. JANKOWSKA	Interneuronal relay in spinal pathways from proprioceptors
M. D. MAJEWSKA	Neurosteroids: Endogenous bimodal modulators of the $GABA_A$ receptor mechanism of action and physiological significance
R.-D. TREEDE, R. A. MEYER, S. N. RAJA and J. N. CAMPBELL	Peripheral and central mechanisms of cutaneous hyperalgesia
R. S. COHEN and D. W. PFAFF	Ventromedial hypothalamic neurons in the mediation of long-lasting effects of estrogen on lordosis behavior
P. SARANSAARI and S. S. OJA	Release of GABA and taurine from brain slices
K. ANDÔ	Cerebrovascular innervation of small bats
M. WOLMAN	Patterns of spread of different demyelinating processes in the myelin sheath
Y. TAKAHASHI	Gene expression in cells of the central nervous system
L. A. MARCO and R. S. JOSHI	A ketamine-induced rat model of tardive dyskinesia
C. P. LEBEL and S. C. BONDY	Oxidative damage and cerebral aging
K. WICTORIN	Anatomy and connectivity of intrastriatal striatal transplants

VOLUME 39

I. FERRER, E. SORIANO, J. A. DEL RIO, S. ALCANTARA and C. AULADELL	Cell death and removal in the cerebral cortex during development
K. V. BAEV and Y. P. SHIMANSKY	Principles of organization of neural systems controlling automatic movements in animals
J. M. BARNES and J. M. HENLEY	Molecular characteristics of excitatory amino acid receptors
J. C. SZERB and R. F. BUTTERWORTH	Effect of ammonium ions on synaptic transmission in the mammalian central nervous system
J. W. MILLER	The role of mesencephalic and thalamic arousal systems in experimental seizures
E. SIMON, R. GERSTBERGER and D. A. GRAY	Central nervous angiotensin II responsiveness in birds
T. TSUMOTO	Long-term potentiation and long-term depression in the neocortex
Y. KURACHI, R. T. TUNG, H. ITO and T. NAKAJIMA	G protein activation of cardiac muscarinic K+ channels
J. R. BLACKBURN, J. G. PFAUS and A. G. PHILLIPS	Dopamine functions in appetitive and defensive behaviours
J. PUYMIRAT	Thyroid receptors in the rat brain
C. F. ZORUMSKI and L. L. THIO	Properties of vertebrate glutamate receptors: Calcium mobilization and desensitization
D. A. MCCORMICK	Neurotransmitter actions in the thalamus and cerebral cortex and their role in neuromodulation of thalamocortical activity
M. KOSSUT	Plasticity of the barrel cortex neurons
J. S. KING, S. L. CUMMINGS and G. A. BISHOP	Peptides in cerebellar circuits
T. GOTOW	The cytoplasmic structure of the axon terminal
G. A. BISHOP and C. W. KERR	The physiological effects of peptides and serotonin on purkinje cell activity
P. A. FUCHS	Ionic currents in cochlear hair cells

G. D. ROSEN, G. F. SHERMAN and A. M. GALABURDA	Biological substrates of anatomic asymmetry
P. T. FRANCIS, M. N. PANGALOS and D. M. BOWEN	Animal and drug modelling for Alzheimer synaptic pathology
G. VAN DEN BERGHE, F. BONTEMPS, M. F. VINCENT and F. VAN DEN BERGH	The purine nucleotide cycle and its molecular defects
J. DEFELIPE and I. FARINAS	The pyramidal neuron of the cerebral cortex: Morphological and chemical characteristics of the synaptic inputs
K. FUKUSHIMA, C. R. S. KANEKO and A. F. FUCHS	The neuronal substrate of integration in the oculomotor system

VOLUME 40

C. R. GARDNER, W. R. TULLY and C. J. R. HEDGECOCK	The rapidly expanding range of neuronal benzodiazepine receptor ligands
C. BUISSERET-DELMAS and P. ANGAUT	The cerebellar olivo-corticonuclear connections in the rat
H. MEIRI, E. BANIN, M. ROLL and A. ROUSSEAU	Toxic effects of aluminium on nerve cells and synaptic transmission
P. I. PAKHOTIN, I. D. PAKHOTINA and A. B. BELOUSOV	The study of brain slices from hibernating mammals *in vitro* and some approaches to the analysis of hibernation problems *in vivo*
A NEHLIG and A. PEREIRA DE VASCONCELOS	Glucose and ketone body utilization by the brain of neonatal rats
B. B. RUZICKA and K. H. JHAMANDAS	Excitatory amino acid action on the release of brain neurotransmitters and neuromodulations: Biochemical studies
R. LENT and S. L. SCHMIDT	The ontogenesis of the forebrain commissures and the determination of brain asymmetrics
G. G. HADDAD and C. JIANG	O_2 deprivation in the central nervous system: On mechanisms of neuronal response, differential sensitivity and injury
C. HILDEBRAND, S. REMAHL, H. PERSSON and C. BJARIMAR	Myelinated nerve fibres in the CNS
M. TAKATA	Two types of inhibitory postsynaptic potentials in the hypoglossal motoneurons
E. J. WARRANT and P. D. MCINTYRE	Arthropod eye design and the physical limits to spatial resolving power
G. NISTICÒ	Communications among central nervous system, neuroendocrine and immune systems: Interleukin-2
E. HÖSLI and L. HÖSLI	Receptors for neurotransmitters on astrocytes in the mammalian central nervous system
J. S. HONG, J. F. MCGINTYL, P. H. K. LEE, C. W. XIE and C. L. MITCHELL	Relationship between hippocampal opioid peptides and seizures
S. MIHARA	Intracellular recordings from neurons of the submucous plexus
M. H. WHITNALL	Regulation of the hypothalamic corticotropin-releasing hormone neurosecretory system
T. A. LOVICK	Integrated activity of cardiovascular and pain regulatory systems: Role in adaptive behavioural responses
H. HARA, T. SUKAMOTO and K. KOGURE	Mechanism and pathogenesis of ischemia-induced neuronal damage
N. LINDEFORS, A. LINDÉN, S. BRENÉ, G. SENDVALL and H. PERSSON	CCK peptides and mRNA in the human brain
A. PERTOVAARA	Antinuciception induced by alpha-2-adrenoceptor agonists, with special emphasis on medefomidine studies
I. MERCHENTHALER, F. J. LÓPEZ and A. NEGRO-VILAR	Anatomy and physiology of central galanin-containing pathways

VOLUME 41

P. BALABAN	Behavioural neurobiology of learning in terrestrial snails
M. TAKANO and A. NOMA	The ATP-sensitive K^+ channel
J. MASSOULIE, L. PEZZEMENTI, S. BON, E. KREJCI and F.-M. VALLETTES	Molecular and cellular biology of cholinesterases
R. NAVARRETE and G. VRBOVA	Activity-dependent interactions between motoneurons and muscles: Their role in the development of the motor unit

M. W. SALTER, Y. DE KONINCK and J. L. HENRY	Physiological roles for adenosine and ATP in synaptic transmission in the spinal dorsal horn
B. H. BLAND and L. V. COLOM	Extrinsic and intrinsic properties underlying oscillation and synchrony in limbic cortex
J. D. COOPER and O. T. PHILLIPSON	Central neuroanatomical organisation of the rat visuomotor system
C. H. HORNER	Plasticity of the dendritic spine
H. M. SINN ‹MON	Preoptic and hypothalamic neurons and the initiation of locomotion in the anesthetized rat
L. AITKIN and V. PARK	Audition and the auditory pathway of a vocal new world primate, the common marmoset
R. E. DUSTMAN, D. E. SHEARER and R. Y. EMMERSON	EEG and event-related potentials in normal aging
B. J. DENNIS and S. T. MELLER	Investigations on the periaqueductal gray (PAG) of the rabbit: With consideration of experimental procedures and functional roles of the PAG
G. R. BARNES	Visual–vestibular interaction in the control of head and eye movement: The role of visual feedback and predictive mechanisms
L. H. LAZARUS and M. ATTILA	The toad, ugly and venomous, wears yet a precious jewel in his skin
R. L. PAPKE	The kinetic properties of neuronal nicotinic receptors: Genetic basis of functional diversity
M. S. ALDRICH	The neurobiology of narcolepsy–cataplexy
K. TOYAMA, Y. KOMATSU, N. YAMAMOTO and T. KUROTANI	*In vitro* studies of visual cortical development and plasticity
C. A. PORRO and M. CAVAZZUTI	Spatial and temporal aspects of spinal cord and brainstem activation in the formalin pain model
A. J. TODD and R. C. SPIKE	The localization of classical transmitters and neuropeptides within neurons in laminae I–III of the mammalian spinal dorsal horn
V. REGHUNANDANAN, R. REGHUNANDANAN and P. I. SINGH	Neurotransmitters of the suprachiasmatic nucleus: Role in the regulation of circadian rhythms
G. S. BOYAN and E. E. BALL	The grasshopper, *Drosophila* and neuronal homology (advantages of the insect nervous system for the neuroscientist)
M. SENSENBRENNER	The neurotrophic activity of fibroblast growth factors
U. PROSKE, D. L. MORGAN and J. E. GREGORY	Thixotropy in skeletal muscle and ‘n muscle spindles: A review
J. HERBERT	Peptides in the limbic system: Neurochemical codes for co-ordinated adaptive responses to behavioural and physiological demand